

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A flat-type display ~~comprising;~~, comprising:

a first panel and a second panel which are bonded to each other in their circumferential portions and having a space between the first panel and the second panel, the space being in a vacuum state, ~~in which;~~

~~a spacer is disposed between a first panel effective field and a second panel effective field that work as a display portion;~~

~~wherein the spacer is fixed to the first panel effective field and/or the second panel effective field with a first low melting point metal material layer;~~

~~wherein a first surface of the spacer is electrically connected to the first panel through a first electrically conductive material layer and the first low melting point metal material layer, the first electrically conductive material layer being between the first surface of the spacer and the first low-melting point metal material layer;~~

~~wherein a second surface of the spacer is electrically connected to second electrically conductive layer formed on the second panel through a second low melting point metal material layer and a second electrically conductive material layer, the second electrically conductive material layer being between the second surface of the spacer and the second low melting point metal material layer;~~

~~wherein the melting point of the low melting point metal material constituting the first low melting point metal material layer is 120° C to 400° C extending, as viewed in cross-section, longitudinally in the space between the first panel and the second panel to terminate in a first end spacer surface and an opposite second end spacer surface and laterally between a pair of spaced-apart spacer side walls to define a thickness therebetween;~~

~~a first electrode member extending across and connected to one of the first panel and the second panel, the first electrode member, as viewed in cross-section, formed with a recess having a pair of facially-opposing recess side walls and a recess bottom wall interconnecting the pair of recess side walls;~~

~~a second electrode member extending across and connected to a remaining one of the first panel and the second panel;~~

a first low-melting-point metal layer and a second low-melting-point metal layer, each one of the first and second low-melting-point metal layers being fabricated from an electrically-conductive material having a low melting point; and

a first conductive material layer and a second conductive material layer, each one of the first and second conductive material layers being fabricated from an electrically-conductive material,

wherein the spacer electrically connects the first and second electrodes.

wherein a first end portion of the spacer is disposed in the recess with the first conductive material layer disposed on the first end spacer surface and the first low-melting-point metal layer being in contact with and disposed between the first conductive material layer and the recess bottom wall and

wherein each one of the pair of recess side walls is in contact with the first conductive material layer and the first low-melting-point metal layer while the pair of spacer side walls at the first end portion of the spacer being spaced apart from the pair of recess side walls.

2. (Original) The flat-type display according to claim 1, in which the spacer is formed of ceramics or glass.

3. (Original) The flat-type display according to claim 1, in which the first panel and the second panel are bonded to each other in their circumferential portions through a bonding layer made of frit glass.

4. (Original) The flat-type display according to claim 1, in which the first panel and the second panel are bonded to each other in their circumferential portions through a bonding layer made of a low-melting-point metal material.

5. (Original) The flat-type display according to claim 1, in which the flat-type display is a cold cathode field emission display, the first panel is an anode panel in which an anode electrode and a phosphor layer are formed, and,

the second panel is a cathode panel in which a plurality of cold cathode field emission devices are formed.

6. (Currently Amended) The flat-type display according to claim 1, in which a plurality of ~~spacer holders~~ recesses for ~~temporarily holding~~ receiving the first end portion of the spacer are formed in the first panel effective field and/or the second panel effective field.

7. (Original) The flat-type display according to claim 6, in which the spacer is formed of ceramics or glass.

8. (Original) The flat-type display according to claim 6, in which the first panel and the second panel are bonded to each other in their circumferential portions through a bonding layer made of frit glass.

9. (Original) The flat-type display according to claim 6, in which the first panel and the second panel are bonded to each other in their circumferential portions through a bonding layer made of a low-melting-point metal material.

10. (Original) The flat-type display according to claim 6, in which the flat-type display is a cold cathode field emission display, the first panel is an anode panel in which an anode electrode and a phosphor layer are formed, and, the second panel is a cathode panel in which a plurality of cold cathode field emission devices are formed.

11. (Currently Amended) A method for manufacturing a flat-type display, said flat-type display comprising a ~~first panel and a second panel which are bonded to each other in their circumferential portions and having a space between the first panel and the second panel, the space~~

~~being in a vacuum state, a spacer being disposed between a first panel effective field and a second panel effective field that work as a display portion,~~

~~said method comprising;~~

~~(A) arranging a spacer on the first panel effective field, said spacer having a first electrically conductive material layer formed on a first surface thereof and a first low melting point metal material layer formed on a surface of the first electrically conductive material layer, the first electrically conductive material layer being between the first surface of the spacer and the first low melting point metal material layer, the melting point of the first low melting point metal material constituting the low melting point metal material layer being 120° C to 400° C, then,~~

~~(B) heating the first low melting point metal material layer to melt the same and thereby fixing said spacer to the first panel effective field, the first surface of the spacer being electrically connected to the first panel through the first electrically conductive material layer and the first low melting point metal material layer, and then,~~

~~(C) placing the second panel on a second surface of the spacer, the second surface of the spacer being electrically connected to a second conductive layer formed on a surface of the second panel through a second low melting point metal material layer and the second electrically conductive material layer, the second electrically conductive material layer being between the second surface of the spacer and the second low melting point metal material layer, bonding the first panel and the second panel to each other in their circumferential portions, and vacuuming the space sandwiched between the first panel and the second panel~~
a first panel and a second panel bonded to each other in their circumferential portions and having a space between the first panel and the second panel, the space being in a vacuum state, a spacer extending, as viewed in cross-section, longitudinally in the space between the first panel and the second panel to terminate in a first end spacer surface and an opposite second end spacer surface and laterally between a pair of spaced-apart spacer side walls to define a thickness therebetween, a first electrode member extending across and connected to one of the first panel and the second panel with the first electrode member, as viewed in cross-section, formed with a recess having a pair of facially-opposing recess side walls and a recess bottom wall interconnecting the pair of recess side

walls, a second electrode member extending across and connected to a remaining one of the first panel and the second panel, a first low-melting-point metal layer and a second low-melting-point metal layer with each one of the first and second low-melting-point metal layers being fabricated from an electrically-conductive material having a low melting point and a first conductive material layer and a second conductive material layers with each one of the first and second conductive material layers being fabricated from an electrically-conductive material, with the spacer electrically connecting the first and second electrodes, the method comprising the steps of:

positioning a first end portion of the spacer in the recess with the first conductive material layer disposed on the first end spacer surface and the first low-melting-point metal layer being in contact with and disposed between the first conductive material layer and the recess bottom wall and each one of the pair of recess side walls being in contact with the first conductive material layer and the first low-melting-point metal layer while the pair of spacer side walls at the first end portion of the spacer being spaced apart from the pair of recess side walls;

positioning the second conductive material layer on the second end spacer surface; and

positioning the second low-melting-point metal layer in contact with and between the second conductive material layer and second electrode member.

12. (Original) The method for manufacturing a flat-type display according to claim 11, in which the spacer is formed of ceramics or glass.

13. (Original) The method for manufacturing a flat-type display according to claim 11, in which the first panel and the second panel are bonded to each other in their circumferential portions through a bonding layer made of frit glass.

14. (Original) The method for manufacturing a flat-type display according to claim 11, in which the first panel and the second panel are bonded to each other in their circumferential portions through a bonding layer made of a low-melting-point metal material.

15. (Original) The method for manufacturing a flat-type display according to claim 11, in

which

the flat-type display is a cold cathode field emission display,

the first panel is an anode panel in which an anode electrode and a phosphor layer are formed, and,

the second panel is a cathode panel in which a plurality of cold cathode field emission devices are formed.

16. (Original) The method for manufacturing a flat-type display according to claim 11, in which

the flat-type display is a cold cathode field emission display,

the first panel is a cathode panel in which a plurality of cold cathode field emission devices are formed, and,

the second panel is an anode panel in which an anode electrode and a phosphor layer are formed.

17. - 22. (Canceled)

23. (Currently Amended) The method for manufacturing a flat-type display according to claim 11, in which a plurality of spaeer holders-recesses for temporarily holding-receiving the first end portion of the spacer are formed in the first panel effective field and/or the second panel effective field.

24. (Original) The method for manufacturing a flat-type display according to claim 23, in which the spacer is formed of ceramics or glass.

25. (Original) The method for manufacturing a flat-type display according to claim 23, in which the first panel and the second panel are bonded to each other in their circumferential portions through a bonding layer made of frit glass.

26. (Original) The method for manufacturing a flat-type display according to claim 23, in which the first panel and the second panel are bonded to each other in their circumferential portions through a bonding layer made of a low-melting-point metal material.

27. (Original) The method for manufacturing a flat-type display according to claim 23, in which

the flat-type display is a cold cathode field emission display,

the first panel is an anode panel in which an anode electrode and a phosphor layer are formed, and,

the second panel is a cathode panel in which a plurality of cold cathode field emission devices are formed.

28. (Original) The method for manufacturing a flat-type display according to claim 23, in which

the flat-type display is a cold cathode field emission display,

the first panel is a cathode panel in which a plurality of cold cathode field emission devices are formed, and,

the second panel is an anode panel in which an anode electrode and a phosphor layer are formed.

29. - 46. (Canceled)

47. (Previously Presented) The flat-type display according to claim 1, wherein the first panel comprises a substratum, a partition wall formed on the substratum between one phosphor layer and another phosphor layer, and a light absorbing layer formed between the substratum and the partition wall.

48. (Currently Amended) The flat-type display according to claim 1,

wherein the melting point of the low-melting-point metal material constituting the second

~~low melting point metal material layers~~ is 120° C to 400° C.

49. (Currently Amended) The flat-type display according to claim 1,
wherein the melting point of the low-melting-point metal material ~~constituting the first low-melting-point metal material layer~~ is 120° C to 300° C.

50. (Canceled)

51. (Currently Amended) The method for manufacturing a flat-type display according to claim 11, in which

~~the melting point of the low-melting-point metal material constituting the second low-melting-point metal material layer~~ is 120° C to 400° C.

52. (Currently Amended) The method for manufacturing a flat-type display according to claim 11, in which

~~the melting point of the low-melting-point metal material constituting the first low-melting-point metal material layer~~ is 120° C to 300° C.

53. - 56. (Canceled)

57. (New) The flat-type display according to claim 1, wherein the second conductive material layer is disposed on the second end spacer surface and the second low-melting-point metal layer is in contact with and disposed between the second conductive material layer and second electrode member.